

- (21) Application No. 47110/76 (22) Filed 10 Nov. 1976 (19)
 (23) Complete Specification filed 10 Nov. 1977
 (44) Complete Specification published 15 Aug. 1979
 (51) INT. CL.² E04B 1/345
 (52) Index at acceptance
 EIA 403 411 420 427 435 451
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(54) INFLATABLE ROOF FOR GREEN HOUSES

(71) We, MARFANI AGRICULTURAL LIMITED, of Dalton Street, Manchester, County of Lancaster, a British Company; do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

10 This invention relates to an inflatable roof structure for greenhouses and like structures.

The object of the invention is an improved construction of greenhouse with an insulated transparent roof.

15 According to the invention a greenhouse or similar tent structure formed of a plurality of bays with a transparent inflatable roof spanning each bay comprises channel beams serving as gutters supported on stanchions or posts separating the bays, each beam being common to or defining the lateral extent of the bays, a double sheet of a plastics material extending between adjacent beams, timber strips bolted to the flanges of the beams to clamp the edges of the sheets thereto, the beams being inclined from one end to the other end of the structure to provide drainage for the gutters and means for inflating the space between the sheets to form a heat insulating roof.

The invention will be described with reference to the accompanying drawings:—

35 Fig. 1 is a perspective view of a greenhouse with the roofing partly broken away;

Fig. 2 is a section on line 2—2 Fig. 1 to a larger scale;

Fig. 3 is a section on line 3—3 Fig. 1 to a larger scale;

40 Fig. 4 is a section on line 4—4 Fig. 1 to a larger scale.

45 A greenhouse A is constructed with a plurality of bays 10 the roofs of each bay being supported by longitudinal channel beams 11 extending between vertical stanchions or posts 12, each beam being common to adjacent bays or defining the lateral extent of the bays. The stanchions 12 may be braced by rods 13 and wires 14 and the

lower ends are embedded in concrete foundations below ground level. 50

A double roof of polythene or other transparent sheets 15, 16 or a tube of a plastics material are mounted to extend longitudinally between two adjacent beams 11 the side edges of the sheets 15, 16 or the tube passing around timber strips 17 bolted to the beams 11 to provide an airtight roof for each bay the two sheets 15, 16 being separated by low pressure air to form a heat insulated roof. The beams 11 may have a drop of 24 inches in a length of 40 yards. 60

The stanchions or posts are reinforced by the diagonal wires 14 and the beams 11 form a gutter to take away any water from the roof sections. 65

The stanchions 12 in the outermost rows may be supported by guy ropes 12a or wires affixed to brackets on the stanchions or posts and to the bars secured in foundations in the ground, the guy ropes being provided with screwed rods at their lower ends to pass through the bars by which the tension may be adjusted. 70

The lower sheets 16 of the roofing may be supported at intervals by wires 14a extending between the beams 11. 75

The walls of the greenhouse are also formed of double polythene or other plastics sheets 18, 19 extending between the stanchions 12 or posts and carried by beams 11a extending at right angles to and parallel with the beam 11 around the periphery of the structure, the lower edges of the sheets lying in a trench and covered with soil. 85

The roofing and walling sheets are provided with valves through which they may be inflated and the roofing assumes an outwardly convex contour and thus reduces the volume of the greenhouse to be heated and the double walls and roof insulate the greenhouse from excessive heat in summer and from cold in winter and economise in heating. 90

The greenhouse is particularly applicable for horticultural use in which the crops are grown on a capillary mat over which a fertilizing liquid flows. 95

A greenhouse constructed as hereinbefore described provides improved insulation, a saving in fuel for heating of some 40%—40% and the cutting out of unproductive areas of the greenhouse and when growing plants using a nutrient film technique pre-heating of the greenhouse before planting is unnecessary.

10 WHAT WE CLAIM IS:—

1. A greenhouse or similar tent structure formed of a plurality of bays with a transparent inflatable roof spanning each bay comprising channel beams serving as gutters supported on stanchions or posts separating the bays, each beam being common to or defining the lateral extent of the bays a double sheet of a plastics material extending between adjacent beams, timber strips bolted to the flanges of the beams to clamp the edges of the sheets thereto, the beams being inclined from one end to the other end of the structure to provide drainage for the

gutters and means for inflating the space between the sheets to form a heat insulating roof. 25

2. A greenhouse or like transparent tent structure as in Claim 1 in which the stanchions are reinforced by rods or wires.

3. A greenhouse or like transparent tent structure as in Claims 1 or 2 in which the lower sheets are supported by wires extending between the tops of the stanchions. 30

4. A greenhouse or like tent structure as in Claims 1 to 3 in which inflatable sheets of plastics material extend between stanchions or posts forming the periphery of the structure to provide double walls therefor the lower edges of the sheets being buried in the ground. 35 40

5. A greenhouse or like transparent structure substantially as described with reference to the accompanying drawings.

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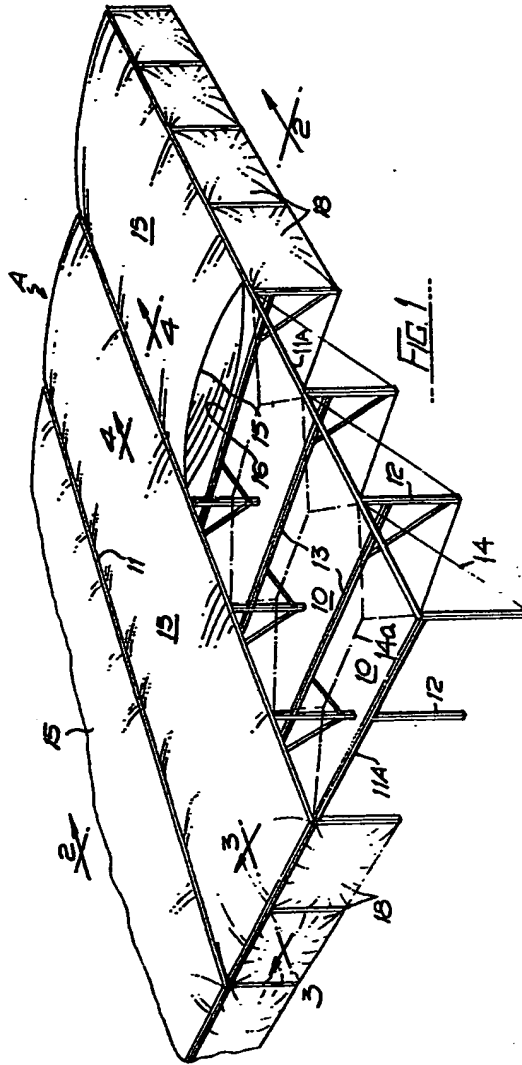
Printed for Her Majesty's Stationary Office by Burgess & Son (Abingdon), Ltd.—1979.
Published at The Patent Office, 25 Southampton Buildings, London, WC2A 1AY
from which copies may be obtained.

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